

Notice of Allowability

Application No.

09/661,998

Examiner

Amanda R. Flynn

Applicant(s)

JONES, MICHAEL BERTHON

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 13 May 2004.
2. ☒ The allowed claim(s) is/are 1-49.
3. ☒ The drawings filed on 14 September 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Henry Bennett
Supervisory Patent Examiner
Group 3700

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Tiberiu Weisz on 12 August 2004.

The application has been amended as follows:

In the claims:

Please replace claims 1 and 2 with the following amended claims:

-- 1. A method of providing synchronized ventilatory support to a patient comprising the steps of:

providing an apparatus to deliver ventilatory support to a patient, the apparatus comprising an airflow sensor and a respiratory effort sensor;

determining at least one instantaneous phase of respiration of the patient continuously at least during inspiration at least in part from both measured respiratory airflow and a signal from a respiratory effort sensor;

calculating a desired pressure value using the determined phase and a desired ventilation pressure amplitude; and

delivering ventilation to said patient in accordance with said desired pressure value.

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2. The method of claim 47 wherein said respiratory effort sensor is selected from a group of effort sensors that are independent of a leak in an airflow that may affect respiratory airflow measurement including:

- (a) a suprasternal notch sensor;
- (b) an esophageal pressure effort sensor; and
- (c) an electromyograph.--

Please replace claim 17 with the following amended claim:

--17. An apparatus for providing synchronized ventilatory support to a patient comprising:

- at least one sensor to generate a respiratory effort signal;
- at least one sensor to generate a respiratory airflow signal;
- a processor in communication with the effort signal; and the airflow signal configured for analyzing both the respiratory airflow signal and the effort signal and to determine at least one instantaneous phase of a respiratory cycle of the patient continuously at least during inspiration and to generate a pressure request signal as a function of said instantaneous respiratory phase and a ventilation pressure amplitude; and
- a servo-controlled blower to provide pressurized air to said patient in accordance with said pressure request signal.--

Please replace claim 33 with the following amended claim:

--33. A method of providing synchronized ventilatory support to a patient comprising the steps of:

- providing an apparatus for ventilatory support to a patient comprising a flow sensor and a respiratory effort sensor;

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determining at least one instantaneous phase of respiration of the patient continuously at least during inspiration, said instantaneous phase being represented as a fraction of a revolution of a respiratory cycle at least in part from a signal from the respiratory effort sensor and a signal from the flow sensor;

calculating a pressure value using the determined phase and a ventilation pressure amplitude;

and delivering ventilation to said patient in accordance with said pressure value--

Please replace claim 37 with the following amended claim:

--37. An apparatus for providing synchronized ventilatory support to a patient comprising:

at least one sensor to generate a respiratory effort signal;

at least one sensor to generate a respiratory airflow signal;

a processor in communication with the effort signal and airflow signal configured for analyzing both said effort signal and said airflow signal and to determine an instantaneous phase of a respiratory cycle of the patient continuously at least during inspiration represented as a fraction of a revolution of a respiratory cycle and to generate a desired pressure request signal as a function of said instantaneous respiratory phase and a desired ventilation pressure value; and

a servo-controlled blower to provide pressurized air to said patient in accordance with said pressure request signal.--

Please replace claim 47 with the following amended claim:

--47. The method of claim 1 further comprising the step of positioning the effort sensor to sense patient effort external to the patient-ventilator airway ~~circuit~~ apparatus in a manner that is independent from a leak in the patient-ventilator airway ~~circuit~~ apparatus.--

Allowable Subject Matter

2. Claims 1-49 are allowed.
3. The following is an examiner's statement of reasons for allowance: The relevant prior art does not disclose a method or apparatus for providing ventilatory support, comprising the step of determining (or a processor which determines; per MPEP 2105, this ability to so determine becomes a structural limitation of the claim) at least one instantaneous phase of respiration continuously at least during inspiration. The most relevant prior art does not teach the continuous and instantaneous determination of phase as claimed, where this determination is based on a respiratory effort value and a respiratory airflow value.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda R. Flynn whose telephone number is 703-306-4056. The examiner can normally be reached on Monday-Thursday, 8:30 - 6:00 and alternate Fridays.

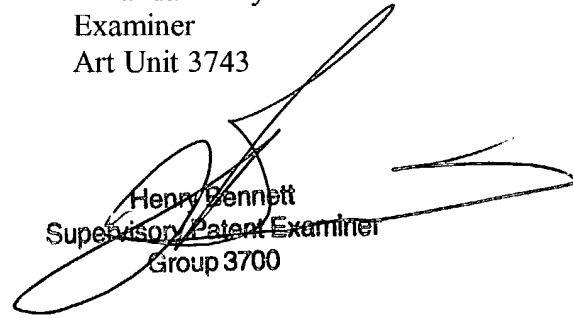
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry A. Bennett can be reached on 703-308-0101. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda R. Flynn
Examiner
Art Unit 3743

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Henry Bennett
Supervisory Patent Examiner
Group 3700